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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,413	07/16/2003	Doron Handelman		7367

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EXAMINER
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KANG, JULIANA K

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/619,413	<b>Applicant(s)</b> HANDELMAN, DORON	
	<b>Examiner</b> Juliana K. Kang	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1/25/05.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 15-25 and 32-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 26-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/3/03</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's election without traverse of Group I, claims 1-14 and 26-31, in the reply filed on January 25, 2005 is acknowledged.

### ***Claim Objections***

2. Claims 7 and 28 are objected to because of the following matters: claim 7 recites the limitation "opposite directions" in line 3 however it does not clearly states opposite of what direction.

3. Claim 28 recites the limitation "the step of programmably selecting" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-14 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuno et al (U.S. Patent 5,247,594) and further in view of Asher (U.S. Patent 5,737,102).

Regarding claims 1, 3, 9, 26 and 27, Okuno et al teach an optical switching matrix comprising: a set of switches configured to function as a set of ON/OFF switches in OFF state to enable a second subset of the switches to be configured in at least one

Art Unit: 2874

optical processing configuration (switching); and a plurality of waveguides interconnecting the switches (see Fig. 1). Switches S00-S03 can be considered as a second subset while the switches S10-S33 is considered as a first subset. When the switches S10-S33 are OFF and the switch S00 is ON the optical path 1a is switched to the optical path 2a (see Fig. 1). However, Okuno et al do not teach that the switches are nonlinear elements. Asher teaches using a nonlinear switch has a high switching capability. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use nonlinear switches in Okuno et al as taught by Asher for optimum switching efficiency.

Please note, regarding the rejections above, that method claims 26 and 27 parallel article claims 1 without the introduction of any particular manufacturing methods, so that it is proper to examine the article and method claims together.

Regarding claim 2, Okuno et al shows the switches that are in a parallelogram matrix (see Fig. 1).

Regarding claims 5 and 6. Okuno et al teach using a Mach-Zehnder interferometer.

Regarding claims 8 and 28, Okuno et al and Asher do not teach a controller and driver interface and a step of programmably selecting. However using a program, controller and driver interface to control a device is well-known in the art to provide easier and automatic operation. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a step of

programmably selecting the switches using a controller and driver interface in Okuno et al and Asher for easier and faster operation of the device.

Regarding claim 10, Okuno et al teach using the device in optical fiber communications and using optical filters are well known in the optical communications to selectively choose wavelengths. Thus, using optical filters in Okuno et al and Asher would have been obvious to one having ordinary skill in the art to selectively choose desired optical wavelengths for the device.

Regarding claims 12, 14 and 30, as described above Okuno et al and Asher teach the claimed invention including changing the various switch states to change the output ports.

Regarding claims 4, 11; 13, 29 and 31, Okuno et al and Asher do not specifically teach that the switches are used for any particular optical processing. The switches taught by Okuno et al and Asher are basic optical matrix switches that can be used in many applications including the claimed optical processing configuration. Thus it would have been obvious to one having ordinary skill in the art to use optical switches of Okuno et al and Asher in any types of optical processing configuration including the claimed optical processing configuration to perform a desired optical processing with optimum switching efficiency.

### ***Conclusion***

6. The prior art documents submitted by applicant have been considered and made of record (note the attached copy of form PTO-1449).

Art Unit: 2874

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wu et al (U.S. patent 6,408,113 B1) teach using an optical matrix switch for logic operations. Mikkelsen et al (U.S. Patent 6,614,582 B1) teach optical regeneration and wavelength conversion system comprising SOAs and Mach-Zehnder interferometer. Hajikano et al (U.S. Patent 4,837,855) teach an optical matrix switch.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Mon. & Thur. 10:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 4/11/05  
JULIANA KANG  
PRIMARY EXAMINER